

The Healthcare System

James W. Mold*

CASE 25-1

Dr. S. was a member of the medical staff of a comprehensive rehabilitation hospital. He was particularly interested in geriatric rehabilitation, the most frequent admitter of older patients to the facility. With the encouragement of the Chief of Staff and administrator of the hospital he began having meetings with the staff to discuss ways to improve the care of older rehabilitation patients. One of the ideas he proposed to the group made up of physicians, nurses, speech pathologists, occupational therapists, physical therapists, recreational therapists, social workers, case managers, and dietitians was to develop a unified, coordinated assessment process. The advantages would include less duplication of effort, better organization of essential information, and better coordination of care. Each member of the team would contribute his or her unique set of information to a single unified assessment and a set of goals for the hospitalization that all would agree to and sign.

Dr. S. was surprised at the resistance to this idea. The physicians were reluctant to trust anyone else's history and examination. The nurses were using a separate chart altogether, had put a great deal of effort into developing it, and saw no reason to change their system. Besides, they argued, their accrediting body would not allow them to reduce the content of their assessment. Some of the therapists were enthusiastic about the idea but were concerned about who would be involved in determining the rehabilitation goals, specifically wondering whether the physicians would control the process. They also stated that their assessments took more time to complete and could not be completed within the time frame that was proposed.

EDUCATIONAL OBJECTIVES

1. The roles, settings, training, and certification of the various healthcare professions, both traditional and alternative

*With the assistance of Barbara Barrett, D.P.M.; F. Tohgi, D.C., L.Ac., Ph.D.; Dan Gentry, P.T.; Andre F. Fountain, R.N.; Kevin T. Avery, D.M.D.; Julia Eyer, Ph.D., CCC-SP; David Thompson, LPT, M.P.H.; Don Lanquist, RRT; Carol McCoy, Ph.D., MT (ASCP), CLS; Earl Schmitt, O.D., Ed.D.; Jacqueline Cook, M.S.W./P; Gary Sharp, P.A.; Bob Shahan, R.T.; Carole A. Sullivan, M.Ed., R.T.(R)T, FASRT; Cynthia Omoto, M.S.W.; Shirley Wunder, R.N.; Paul Preslar, D.O.

2. How to consult with and refer to each of these professionals
3. How to build multidisciplinary healthcare teams, and how to overcome the most common obstacles in building such teams

INTRODUCTION

Although typically considered to be the principal providers of healthcare, physicians represent only one of a large number of healthcare professionals that make up the healthcare system. Many of the other healthcare disciplines are comparatively new (post World War II), reflecting the increasing complexity of modern healthcare. Table 25.1 is a partial list of "traditional" healthcare practitioners. In addition to these, a variety of "alternative" or "complementary" healthcare practitioners have gained recognition in recent years (Table 25.2).

For such a large and complex system to be maximally effective and efficient, a certain amount of teamwork is required. Unfortunately, the training received by the practitioners in each discipline is predominantly discipline specific, with surprisingly little integration with the training programs of the other disciplines. As a result, the conceptual approaches to healthcare and even the languages used by providers from the various disciplines differ considerably. In addition, because of differences in responsibilities and rewards and some overlap of competencies, there is a natural tendency for the various groups to be suspicious and envious of each other, a tendency that, at its worst, leads to what is commonly called protecting one's turf, illustrated in Case 25-1.

When the contributions of the various disciplines are recognized and valued, the healthcare system can function in a truly interdisciplinary way. Cooperation results in improved coordination of healthcare with less duplication of efforts. More overall energy can be applied to patient care.

Table 25.1
Characteristics of "Traditional" Healthcare Professionals^a

Discipline	Year	Number of Practitioners in U.S.	Length of Training	Degree
Physicians				
Allopathic	1998	777,859	5–11 years	M.D.
Osteopathic	1999	44,000	7 years	D.O.
Podiatric	1998	7,510	5–10 years	D.P.M.
Psychologists	1998	84,380	5–8 years	Ph.D.
Social workers	1998	365,600	4–8 years	B.A., M.S.W., Ph.D.
Speech pathologists/audiologists	1998	88,390	4–6 years	CCC-SP; CCC-A; CCC-SP/A
Pharmacists	1998	178,110	5–6 years	Pharm.D.
Physician assistants	1998	62,000	2–4 years	P.A.
Dental practitioners	1998	81,510	4 years	D.D.S.
Nurses				
Registered nurses	1998	2,027,830	2–4 years	R.N.
Licensed practical nurses	1998	673,790	1 year	L.P.N.
Optometrists	1998	23,500	4 years	O.D.
Dietitians/nutritionists	1998	44,840	4–5 years	R.D./L.D.
Medical/clinical technologists	1998	151,100	3–5 years	
Occupational therapists	1998	64,730	4–8 years	O.T.R.
Recreational therapists	1998	23,300	4 years	
Physical therapists	1998	111,480	4–5 years	P.T.
Respiratory therapists	1988	84,730	2–5 years	RRT/CRTT
Radiology technologists	1998	157,480	2–4 years	RTR/RT(N)/RRT; RT(US)/RT(CT)

^aInformation for this table was obtained from the U.S. Government Bureau of Labor & Statistics Occupational Employment and Wage Data online: http://stats.bls.gov/oes/oes_data.htm

Table 25.2
Partial List of Alternative Healthcare Disciplines and Practices

Acupuncture	Herbal medicine	Massage
Aromatherapy	Homeopathy	Meditation
Art therapy	Hypnosis	Naturopathy
Ayurveda	Imagery/visualization	Orthomolecular medicine
Chelation therapy	Iridology	Reflexology
Chiropractic	Macrobiotics	Rolfing

PHYSICIANS

Practitioners from several different disciplines use the title “physician” and/or “doctor.” These include allopathic physicians, osteopathic physicians, doctors of podiatric medicine, doctors of optometry, chiropractic physicians, and homeopathic and naturopathic physicians. At present, allopathic and osteopathic physicians are most similar in terms of training, credentialing, practice activities, and status. For this reason, after a brief review of their philosophical origins, they will be discussed together while the other groups will be discussed individually later in the chapter.

Allopathic Physicians

The terms *allopathy* and *allopathic medicine* were coined by Hahnemann around 1849 to distinguish “ordinary” medical practice from the emerging field of homeopathy. *Allopathy* implies an active approach to the treatment of disease using medications and surgery to do what the body is unable to do for itself. Allopathic physicians are currently the predominant physicians in the United States. Their education involves an undergraduate college degree including a variety of prerequisites—mainly math and science, 4 years of medical education leading to the medical doctor (M.D.) degree, and from 1 to 10 years of residency training.

Osteopathic Physicians

Osteopathy was founded by Andrew Still in 1874 on the following principles, which he felt to be sufficiently distinct from those of allopathic medicine at that time (Jones, 1978).

1. The body is an integral unit, a whole. The structure of the body and its functions work together, interdependently.
2. The body systems have built-in repair processes, which are self-regulating and self-healing in the face of disease.
3. The circulatory system or distributing channels of the body, along with the nervous system, provide the integrating functions for the rest of the body.
4. The contribution of the musculoskeletal system to a person’s health is much more than providing framework and support.
5. While disease may be manifested in specific parts of the body, other body parts may contribute to a restoration or correction of the disease.

His original intent was not to create a new discipline but rather to strengthen the existing one (Lescho, 1999).

Dr. Still was fascinated with the musculoskeletal system, spending large amounts of time studying it in great detail. At the same time he opposed many of the pharmaceutical remedies that were in vogue at the time, and was therefore interested in nonpharmacological treatments for disease that could enhance the body’s natural repair mechanisms. He became convinced that manipulation of the musculoskeletal system could affect beneficial changes in all other systems, particularly the circulatory and nervous systems, which he believed were critical to the body’s natural reparative mechanisms. Musculoskeletal manipulation is now a relatively small but still important part of most osteopathic physicians’ practice.

Currently osteopathic physicians receive essentially the same quantity and quality of training as allopathic physicians, with only minor differences in philosophy and emphasis. Their terminal degree is the doctor of osteopathy (D.O.) degree. Although barriers and philosophical distinctions between the two physician groups are diminishing, there are no obvious signs that the two professional bodies intend to unite in the near future.

Osteopaths have always been trained as generalists first and foremost, and although specialty training is available in all of the traditional areas, a larger percentage of osteopaths choose general practice than do allopathic physicians. Osteopathic physicians have also been more likely to practice in rural settings than their allopathic counterparts. An osteopath can choose to do either an osteopathic or an allopathic residency program in primary care or a subspecialty after medical school.

Physicians and the Healthcare System

Physicians have generally occupied the highest leadership roles in the healthcare system, due to their extensive training and revered position in society. State and national physician organizations, such as state medical societies and the American Medical Association, exert a powerful influence on legislators. Although administrators are now taking away some of the authority and responsibility that has traditionally belonged to physicians, among healthcare providers it is still physicians who most frequently give the orders that other healthcare providers are expected to follow. And it is physicians who bear the greatest liability when something goes wrong. Many physicians still believe that other healthcare professionals should only be involved in patient care by direct order of and under the close supervision of a physician.

Because of the current level of acceptance of a biomedical model of health and illness, physicians, as the most highly trained applied biomedical scientists, are logically the most powerful members of the healthcare team. Other health professionals are often forced, then, to function in supporting roles. There is some reason to believe, however, that the current biomedical model may soon undergo a transformation that may alter this traditional hierarchy. The pressure for such a paradigm shift comes from consumers and, more recently, payors (e.g., employers) who have become increasingly dissatisfied with the current technical, physician-dominated approach, which they view as impersonal, mechanistic, and expensive (Freyman, 1989).

While historically physicians have been predominantly male and other healthcare disciplines predominantly female, since 1967, the percentage of female physicians has increased substantially. Differentials in income undoubtedly reflect differences in training and responsibility but perhaps also a measure of sexism. As more women choose to become physicians and more men become nurses and allied health professionals, these differences may become less significant.

CASE 25-2

Mrs. M. was a 78-year-old widow who lived alone. Because of frequent falls and increasing forgetfulness, she had become essentially homebound by choice. She came to the attention of Dr. S., a general internist, on referral from a social worker from Adult Protective Services (APS) who requested a medical evaluation of her falls, forgetfulness, and the recent onset of a blood discharge from one of her breasts. The APS became involved because of the neighbors' concerns that Mrs. M. was in need of assistance.

Dr. S., after careful evaluation, concluded that there was a possibility of significant heart disease as well as a breast nodule, bilateral cataracts, and mild dementia. He referred her to a general surgeon for breast biopsy, an ophthalmologist for evaluation of the cataracts, and arranged for her to have some cardiac studies, an echocardiogram, and a 24-hour Holter monitor.

The breast nodule was biopsied and proved to be malignant. The consulting surgeon suggested a modified radical mastectomy. The ophthalmologist confirmed the presence of cataracts but was not

convinced that removing them would prevent further falls. The results of the cardiac studies were normal.

Mrs. M. was admitted to the hospital for breast surgery. Dr. S. visited her in the hospital and met with nurses to develop a plan of care that would prevent falls and minimize the confusion he anticipated might result from the unfamiliar hospital environment. He asked that the surgeon request a physical therapy consult to help with the evaluation of the falls and to ensure that Mrs. M. remained as active as possible during the hospitalization. The surgery was a success, no complications occurred, and Mrs. M. was discharged to her home. Dr. S. then scheduled a house call and invited the social worker from Adult Protective Services to be present for a discussion of further healthcare needs.

Generalists and Subspecialists

As medicine has become more complex, physicians have become increasingly subspecialized. Table 25.3 lists the major medical and surgical subspecialties. Generalist physicians still provide most of the primary care, managing 80–90% of patients' problems and coordinating the care of other professionals as in Case 25-2. Many of the same kinds of turf issues that occur between healthcare disciplines also occur to a somewhat lesser degree between subspecialties of medicine for similar reasons. Subspecialized physicians tend to have greater status and higher incomes than generalists. This is in contrast to most corporations in which individuals with the most specialized training head divisions, whereas corporate leaders are of necessity generalists. Part of the income differential between subspecialists and generalists is the result of third-party reimbursement practices.

Despite their higher incomes and status, subspecialists are dependent on generalists for consultations and referrals. Thus, there is some pressure on subspecialists to be gracious and to return patients to the consulting/referring physicians as promptly as possible. These courtesies often break down within medical centers and other large organizations in which, for a variety of reasons, subspecialists are less dependent on, or less aware of their dependency on, primary care physician referrals.

Patients interested in obtaining the best possible medical care are faced with the choice of either seeing the appropriate subspecialists for each of their health problems, or seeing a generalist (family physician, internist, or pediatrician), whom they must trust to refer them to subspecialists when appropriate. Studies indicate that family physicians can adequately manage 85–95% of the healthcare problems that their patients present to them without consultation or referral (AAFP, 1991). Because of their familiarity with subspecialist colleagues and the local healthcare system, generalist physicians are in a good position to advise their patients when consultation with other providers is necessary and which subspecialists would provide them with the best service in specific situations.

However, generalists are less likely to recognize and diagnose unusual problems as quickly and accurately as subspecialists. They are therefore susceptible to *errors of omission*. They are also less likely than subspecialists to follow clinical practice guidelines for individual diseases, being more concerned about the patient as a whole, and more easily distracted by competing problems. Subspecialists, on the other hand, often

Table 25.3
Major Medical and Surgical Subspecialties

Allergy and immunology	Neurology	Physical medicine and rehabilitation
Anesthesiology	Nuclear medicine	Plastic surgery
Colon and rectal surgery	Obstetrics and gynecology	Psychiatry and neurology
Dermatology	Ophthalmology	Radiology
Emergency medicine	Orthopedic surgery	Surgery
Family practice	Otolaryngology	Thoracic surgery
Preventive medicine	Pathology	Urology
Internal medicine	Pediatrics	

have less familiarity with the patient, are less able to view health problems in context, are expected not to make errors of omission, and have more technology at their fingertips, making them more susceptible to *errors of commission* (doing too much).

Errors of omission are more obvious than errors of commission, but they are not necessarily more harmful. Increasingly aggressive attempts through testing and other interventions to reduce uncertainty may result in an avalanche of unwanted consequences. This phenomenon has been called the *cascade effect* (Mold & Stein, 1986). Clinical cascades may be catastrophic but are often unrecognized.

CASE 25-3

Mrs. F. was a 68-year-old woman who had coronary artery bypass surgery 6 years earlier and now was experiencing recurrent angina pectoris related to severe coronary artery disease, uncontrolled by medications. Her physician, Dr. J., requested a cardiologist's opinion regarding the risks and benefits to Mrs. F. of another coronary artery bypass operation. The cardiologist, after evaluating Mrs. F., agreed that surgery was a possible option and requested the additional input of a cardiothoracic surgeon. The surgeon, after reviewing the cardiac catheterization results, recommended against surgery because of the high operative mortality risk for this particular patient (approximately 20%).

However, Dr. J. felt that his questions had not been properly answered. He already knew that the risk associated with a second cardiac surgery would be high, but he believed his patient might be willing to take a substantial risk because of the persistence of her chest pain, which was limiting her to a bed-to-chair existence. What Dr. J. really needed to know were the probability of benefit and the possible likelihoods of the various nonfatal adverse outcomes associated with surgery so that he could help Mrs. F. make the best possible decision, taking into account her own values and preferences.

Consultation and Referral

Integral to the professional relationship between physicians is the consultation and referral process. Classically, a physician asks a consultant on behalf of his patient for advice regarding the diagnosis or treatment of a particular health problem. At times it is necessary and appropriate for one physician to refer a patient to another physician for ongoing management of one or more problems. Such requests may be communicated by phone, letter, or by the patient. The more effectively the request is communicated, the more likely the consultant is to be helpful. Once the consultant has reached an opinion, he or she communicates it to the patient and primary physician, generally by phone and/or mail and returns the patient to the care of the consulting physician unless requested to do otherwise (McWhinney, 1989). Obviously, good communication between physicians is essential to the consultative process, but, unfortunately, it doesn't always occur.

A proper consultation request should specify the questions being asked of the consultant and the extent of involvement requested of the consultant in the evaluation and management of the patient. The physician requesting the consultation may, for example, request that the consultant render an opinion regarding diagnosis or treatment but not assume responsibility for implementation of the recommended treatment. Alternatively, the request may be for the physician to assume complete responsibility for the management of a specific problem.

Although the opinion of the consultant should be given a great deal of consideration, it is not binding. Neither the physician requesting the consultation nor the patient is under any ethical or legal obligation to follow the advice of the consultant. It should be remembered that although the consultant brings specialized knowledge and skills to bear on the problem in question, the consulting physician and patient have equally important information that must be considered before a final decision can be made. Under no circumstances should a consultant send the patient to a second consultant without the authorization and approval of the primary physician, as was done in Case 25-3.

CHOOSING A SPECIALTY

Several methods have been proposed to help medical students select the medical or surgical field for which they will be best suited. Those who choose primary care tend to be more comfortable with uncertainty and less concerned about money and prestige than those who become subspecialists. Personality inventories such as the Myers Briggs Type Indicator suggest, for example, that students who are "introverted, intuitive, feeling, perceptives" (INFP) tend to choose and be happy in psychiatry while those who are "extroverted, sensing, thinking, judgers" (ESTJ) tend to choose careers in surgery. An alternative conceptualization suggests that medical career choice can be guided by one's level of enjoyment of three categories of activities: need for sensation or excitement, relationships with people, and use of technologies.

Physician Associates/Assistants

Once called *physician extenders*, physician associates (PA's) are healthcare professionals who provide services to patients under the supervision of physicians. Physician associates take medical histories, perform physical examinations, order laboratory tests, make diagnoses, and prescribe treatments including medications. They practice in private physicians' offices, health maintenance organizations, nursing homes, student health services, urban and rural clinics, correctional institutions, and industry. In addition, physician associates are involved in medical education, health administration, and research.

Physician associates are trained in programs accredited by the Committee on Allied Health Education and Accreditation (CAHEA), which is sponsored by the American Medical Association. The first phase of the 2-year curriculum includes classroom and laboratory instruction in the basic medical sciences. The second phase consists of structured clinical rotations providing the students with direct patient contact. These rotations are intensive hands-on learning experiences in private and institutional medical settings that emphasize training in primary care (family practice, internal medicine, and pediatrics) but also include experience in obstetrics and gynecology, surgery, and emergency medicine.

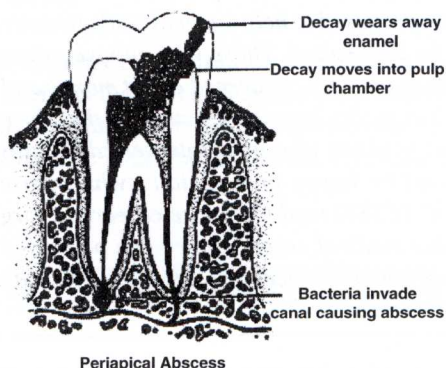
Degrees awarded vary, depending on the institution offering the program and the educational background of the student. Most programs offer a baccalaureate degree. A few master's degree and residency programs are available either within the core PA curricula or for postgraduate specialization in such areas as occupational medicine, surgery, and pediatrics.

Physician associates, working with other members of the healthcare team, improve the overall distribution of healthcare services and access to care, particularly in rural areas and underserved communities. They also increase the efficiency of ambulatory care practices, reduce patient waiting time, and allow physicians more time for difficult cases. By stressing preventive health and periodic screening, they may help reduce excess morbidity and mortality (Jones & Crawley, 1994).

CASE 25-4

A 40-year-old insulin-dependent diabetic, E.W., who had previously achieved excellent diabetic control, had recently begun to have blood glucose levels in the 200 to 300 mg/dl (normal ≤ 100 mg/dl) range for reasons that were unclear to him. His physician was also puzzled. Because of some gum swelling and irritation, he saw his dentist. The dentist discovered an abscess under one of E.W.'s teeth, which he treated with antibiotics and surgical drainage. One week later, E.W.'s diabetes once again came under good control. No communication occurred between the physician and dentist before or after the event.

DENTAL ABSCESS



A collection of infected material (pus) resulting from bacterial infection of the center (pulp) of a tooth.

DENTISTS

Approximately 85% of dental practitioners in the United States are generalists. Only one state (Delaware) requires a year of residency training. Most states require National Board exams and/or practical clinical exams. The American Dental Association (ADA) recognizes eight dental subspecialties: orthodontics, oral surgery, oral pathology, endodontics, pediatric dentistry, dental public health, periodontics, and prosthodontics, all of which require several years of additional training beyond dental school.

Dentists provide a wide range of services including prevention, diagnosis, and treatment of dental caries; medical and surgical treatment of gingival and periodontal disease; prosthodontic and surgical treatment of malocclusion, temporomandibular joint dysharmony, and cosmetic problems; and treatment of various benign and malignant soft tissue diseases. The dental caries rate in the U.S. population has been substantially reduced by water fluoridation. As a result, the rate of dental loss has been substantially reduced, and many more people are at risk for periodontal disease. The profile of services that dentists provide has therefore shifted to include fewer fillings and extractions and more endodontics, periodontics, and cosmetic restorations (Ring, 1985). Part of this shift is also related to new technology and to patient expectations. People now expect to keep their natural teeth over a lifetime and are demanding treatment approaches that will help them to do so. In 1988 the U.S. population spent more than \$37 billion on dental care. Half of that amount came directly from patients, almost half from third parties, and very little from the government.

Physicians and dentists working together could better educate their patients, identify problems early, and make appropriate referrals, in contrast to what more commonly happens, illustrated in Case 25-4. Most dental diseases are either preventable or are much easier and less costly to treat in the incipient stages. Particularly critical to oral health are episodes of severe physical illness when resistance is compromised and oral hygiene is likely to be less adequate. Physicians must be particularly alert to the potential need for dental evaluation and treatment during or following such episodes.

CASE 25-5

Mrs. R., a 60-year-old woman with longstanding diabetes mellitus associated with visual impairment, neuropathy, and peripheral vascular disease, was admitted to the hospital with gangrene of several toes on her left foot. After a forefoot amputation, she was discharged home to be followed closely by

WHAT IS GANGRENE?

Gangrene is defined as the destruction of living tissue due to obstruction of the blood and oxygen supply.

Dry Gangrene

Dry gangrene is caused by the gradual loss of blood. Dry gangrene often comes about as a result of diabetes, arteriosclerosis, or severe frostbite. The skin becomes painful and then dark, the dead skin eventually drying and dropping off. This form of gangrene is not life threatening because healing usually takes place naturally at the junction between the living and dead tissue.

Moist Gangrene

A more serious condition, known as moist gangrene, is caused by the loss of blood supply. Some cells may stay alive while surrounding cells begin to quickly die and to leak fluid, causing the affected tissues to become moist. Bacteria flourish in the moist environment. At first, the skin becomes swollen and blisterous, and then foul smelling. This type of gangrene can spread rather quickly and can be fatal.

Gas Gangrene

The most deadly form of gangrene is gas gangrene. It occurs in wounds infected with bacteria that live in low oxygen environments, which release gas and poisons into the body. The symptoms of gas gangrene are high fever, brown pus, and gas bubbles on the skin. This form of gangrene spreads very quickly, and causes a rapid death.

her primary care physician and a home health agency. The agency sent a registered nurse to her home to teach her how to change dressings, to monitor her blood sugars and blood pressures (her medications and dosages had been changed), and to measure correctly and administer her insulin. Physical and occupational therapists made home visits as well to help her to modify her home and to learn to care for herself after the amputation. The agency staff communicated with Mrs. R.'s primary care physician by mail, phone, and during monthly luncheon meetings at the physician's office.

NURSES

Florence Nightingale described a nurse's role as "putting the patient in the best condition for nature to act upon him." In 1980, the American Nurses' Association redefined nursing as "the diagnosis and treatment of human responses to actual or potential health problems," reflecting a somewhat more expansive concept of the involvement of nurses in patient care (Friedman, 1990). In most clinical settings, nurses spend a greater amount of time working directly with patients than any other healthcare professionals. Their impact on outcomes is often underestimated. Studies of postoperative mortality rates between hospitals have consistently pointed to the experience and qualifications of the nursing staff as one of the major variables determining outcome.

Collaboration between physicians and nurses, though vitally important for optimal patient care, is often suboptimal (Fagin, 1992; Friedman, 1990; Stein *et al.*, 1990). Physicians frequently regard nurses as subordinates whose major responsibility is to carry out their orders. Nurses, on the other hand, consider themselves to be healthcare professionals with roles equally as important as and distinct from those of physicians. Although nurse practice acts vary from state to state, several legal opinions have held nurses responsible for failing to take timely and responsive action, such as failing to communicate patient condition changes to the physician and failure to discover conditions not found by the physician.